

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-001642**Date Inspected:** 26-Feb-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower and OBG Fabrication**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

Orthotropic Box Girder (OBG) and Tower Mock Up:

CWI Inspectors: Mr. Chen Chih-Ming, Fu Guo Gang

Bay 3

The QA Inspector performed random visual and magnetic particle inspections of portions of bottom plate stiffener welds BP005-01-008 through BP005-01-019. ZPMC QC inspector Mr. Zhou Diong Yun had previously performed a magnetic particle inspection of approximately a 10% length of these welds. The QA Inspector observed weld BP005-01-019 has weld overlap at the bottom toe a distance of approximately 50 mm at the end of the weld. Prior to the resolution of this weld overlap this QA Inspector was assigned to bay 1. See QA Inspector Mr. Paul Stovall's inspection report for additional information concerning this weld overlap. Other areas of BP005 that were inspected by the QA Inspector appear to comply with project specifications.

The QA Inspector observed three ZPMC welders using welding procedure specification WPS-B-T-2132-3 to make flux cored fillet welds on six OBG side plate 020 stiffener welds at the same time. ZPMC has multiple flux cored

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welding manipulators attached to a movable gantry that runs on a track along the length of the stiffener plates. The QA Inspector observed ZPMC QC CWI Inspector Mr. Chen Chih-Ming monitoring QC Inspector Mr. Xiang who was taking voltage and current measurements for this welding. Note: yesterday this QA Inspector observed one of the welders had excessive welding voltage after approximately 4 meters of weld had been completed. Today ZPMC QC Inspector Mr. Xiang appears to be performing welding parameter measurements as soon as the welding is started. Due to a welding machine malfunction, the welding of SP020 welds was stopped until adjustments could be completed. The QA Inspector observed QC Inspector Mr. Xiang has recorded the following welding information: Welder Mr. Li Xuehua stencil 58174 completed weld SP020-01-023 with a welding current of approximately 270 amps and 29.0 volts and weld SP020-01-024 with a welding current of approximately 270 amps and 29.0 volts. Welder Mr. Li Shuliang stencil 48801 completed weld SP020-01-019 with a welding current of approximately 310 amps and 29.9 volts and weld SP020-01-020 with a welding current of approximately 295 amps and 30.21 volts. Welder Mr. Sun Tiyu stencil 54459 completed weld SP020-01-015 with a welding current of approximately 280 amps and 31.2 volts and weld SP020-01-016 with a welding current of approximately 315 amps and 32.3 volts. Items observed by the QA Inspector appear to comply with project specifications.

Bay 1

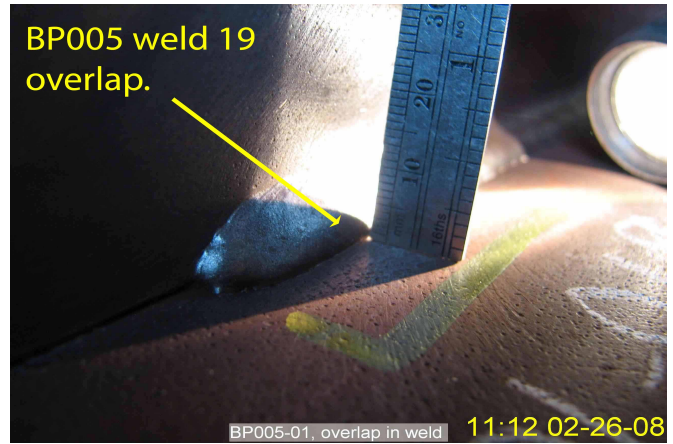
Earlier today QA Inspector Mr. Larry Viars monitored ZPMC completing the flux core closed rib welding of PMT (Preweld Monitoring Test) plates for deck plate DP020. Flux cored weld passes were then made on deck plate DP020-001 closed rib welds. ZPMC then commenced with flux cored welding of deck plate DP064-001 closed rib welds prior to completion of making the submerged arc PMT welds. An incident report was issued with the following description:

“The Fabricator (ZPMC) performed welding on OBG Deck Panel DP064-001 in violation of an agreement between the Department and the Contractor (ABF). Welding was performed on DP020-001 prior to completion of visual inspection of the preceding closed rib production monitoring test (PMT). ABF and the Department previously agreed that only one production panel may be welded per PMT until the PMT is visually inspected and accepted by all parties. Deck panel DP064-001 was the second production panel that was welded following the performance of the PMT on 26-Feb-08. Deck Panel DP-020-001 was the first deck panel welded.”

The QA inspector performed monitoring of deck plate DP064. The QA Inspector observed the flux cored welding process and the following measurements were obtained: Weld #1 operator Mr. Feng Chan Hou, stencil 59371 has a welding current of 350 amps and 30.3 volts, Weld #2 operator Mr. Che Jie, stencil 59468 has a welding current of 379 amps and 31.1 volts, Weld #5 operator Mr. Gao Xin Dong, stencil 59361 has a welding current of 360 amps and 30.8 volts, Weld #6 operator Mr. Zhang ShaoHui, stencil 59403 has a welding current of 352 amps and 30.5 volts, Weld #9 operator Mr. Zhau Cheng Shuang, stencil 59400 has a welding current of 348 amps and 31.0 volts, Weld #10 operator Mr. Yuan Fen Chuan, stencil 59355 has a welding current of 365 amps and 31.0 volts. Note: this is the second BP that was welded prior to ZPMC performing final inspections of the PMT plate. Following completion of the welding of this plate the QA Inspector observed ZPMC QC Ultrasonic Inspector Mr. LiLi Ming performing ultrasonic (UT) inspection of these six PMT welds to determine the amount of weld penetration. Mr. Ming marked all of the welds as being UT acceptable.

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Summary of Conversations:

See above for summary of conversations.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By: Dawson,Paul

Quality Assurance Inspector

Reviewed By: Cochran,Jim

QA Reviewer